

# PARUL UNIVERSITY - FACULTY OF ENGINEERING & TECHNOLOGY

Department of Computer Science & Engineering

Proposed SYLLABUS for 4<sup>th</sup> Semester

B.Tech PROGRAMME W.E.F. A.Y. 2021-22

Analysis of Algorithms Laboratory  
(203124252)

## Teaching and Examination Scheme:

Teaching Scheme (Hrs./Week)			Credit	Examination Scheme					Total
L	T	P		External		Internal			
				Theory E	Practical V	Theory M	*C.E	Practical P.A	
0	0	2	1	-	30			20	50

## List of Practical:

1. Implementation and Time analysis of Bubble, Selection and Insertion sorting algorithms for best case, average case & worst case.
2. Implementation and Time analysis of Max-Heap sort algorithm.
3. Implementation and Time analysis of Merge Sort algorithms for Best case, Average case & Worst case using Divide and Conquer.
4. Implementation and Time analysis of Quick-Sort algorithms for Best case, Average case & Worst case using Divide and Conquer.
5. The Inversion Problem Program: Given sequence of numbers, which are all distinct, define an inversion pair (i,j) where,  $i < j$  such that value of ith index is greater than jth. Let's call a pair a significant inversion  $i < j$  and  $>$ . Give a conventional approach and solve it then apply divide and conquer algorithm to count the number of significant inversions between two orderings.
6. Write a program to solve fractional knapsack problem.
7. Implementation and Time analysis of Krushkal's Minimum spanning Tree algorithms.
8. Implementation and Time analysis of Prim's Minimum spanning Tree algorithms.
9. Write a program to solve 0-1 knapsack problem.
10. Implementation and Time analysis of Depth First Search (DFS) Graph Traversal and Breadth First Traversal (BFS) Graph Traversal.